Surgical treatment of tumors of the proximal stomach with involvement of the distal esophagus: A 26-year experience with Siewert type III tumors

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Objective: A paucity of outcome data exists regarding patients with proximal stomach cancer involving the distal esophagus (Siewert type III tumors). This is especially true with regard to long-term survival rates after surgical intervention.

Methods: Medical records were reviewed of all patients who underwent total gastrectomy and distal esophagectomy with Roux-en-Y esophagojejunostomy for Siewert type III tumors from January 1975 through December 2000.

Results: There were 116 patients (93 men and 23 women). The median age was 66 years (range, 22-87 years). Pathologic stage was 0 (carcinoma in situ) in 1 patient, IB in 13 patients, II in 17 patients, IIIA in 34 patients, IIIB in 10 patients, and IV in 41 patients. Complete resection was achieved in 69 (59.5%) patients. Eleven (9.5%) patients were treated with neoadjuvant therapy, 49 (42.2%) received adjuvant therapy, and 6 (5.2%) received intraoperative radiation. Follow-up was complete in 114 (98.3%) patients, ranging from 1 to 281 months (median, 14 months). Operative mortality was 5.2%. Complications occurred in 51 (43.9%) patients. Clinically significant anastomotic leaks occurred in 15 (12.9%) patients. Median hospitalization was 13 days (range, 8-70 days). Median follow-up was 14 months (range, 1-281 months). Overall median survival was 434 days, with 1-, 5-, and 10-year survivals of 56.2%, 19.0%, and 13.5%, respectively. The only factor associated with increased hospital mortality was anastomotic leakage ($P = .002$). Incomplete resection, increased tumor stage and grade, and splenic involvement significantly worsened long-term survival.

Conclusions: Total gastrectomy and distal esophagectomy for Siewert type III tumors is associated with reasonable mortality and significant morbidity. Although often palliative, surgical intervention can provide long-term survival, especially in patients with completely resected, early-stage, low-grade tumors.

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The prevalence of gastric carcinoma has been decreasing; however, a sharp increase in the prevalence of adenocarcinoma of the esophagogastric junction (AEG) has occurred.[1] Unfortunately, inconsistencies in defining tumor location have made it difficult to evaluate the results, prognosis, and optimal treatment strategies for patients with carcinoma in the region of the esophagogastric junction. To address those issues, a recent consensus report from the International

GTS

Abbreviations and Acronyms
AEG = adenocarcinoma of the esophagogastric junction
UICC = Union Internationale Contre le Cancer

Gastric Cancer Association and the International Society for Diseases of the Esophagus has provided a workable definition of these tumors (Table 1).[2]

Few comparative data exist for subcardial gastric carcinoma involving the gastroesophageal junction and distal esophagus (Siewert type III). This is especially true concerning morbidity and long-term mortality after surgical resection. Although treatment options for these patients include surgical resection, chemotherapy, and radiotherapy in various types of combinations, the only potentially curative therapy for these cancers remains surgical resection. The purpose of this study is to evaluate the outcomes of our patients with Siewert type III tumors who underwent total gastrectomy with distal esophagectomy to better define the role of surgical intervention in this clinical situation.

Patients and Methods

All patients who underwent total gastrectomy and distal esophagectomy with Roux-en-Y esophagojejunostomy for adenocarcinoma of the proximal stomach involving the distal esophagus (Siewert type III tumors) at our institution between January 1975 and December 2000 were identified from a prospectively maintained surgical database. A dedicated review of pathology, operative and endoscopic reports, and radiologic studies was undertaken to ensure that cases included in this study complied with the definition of a Siewert type III tumor: adenocarcinoma of the stomach that infiltrates the esophagogastric junction and distal esophagus from below with a tumor epicenter within 5 cm of the cardia.

The medical records of these patients were reviewed for patient demographics, presenting signs and symptoms, tumor stage (including T, N, and M status), grade of tumor, surgical approach, completeness of resection, date of surgical intervention, tumor involvement of the spleen or other organs, induction chemotherapy or radiotherapy, adjuvant chemotherapy or radiotherapy, postoperative morbidity and mortality, length of hospitalization, last follow-up visit or date of death, disease status at follow-up or death, and cause of death.

For the purposes of our analysis, the patients were divided into 2 groups depending on the date of esophagogastrectomy: the initial era (1975-1987) and the latter era (1988-2000). We classified the procedures as either complete resection (R0) or incomplete resection (R1) if microscopic examination of the surgical margins revealed the presence of residual cancer. Operative mortality included patients who died within 30 days after the operation or at any time during their initial postoperative hospitalization. All patients were staged with the Union Internationale Contre le Cancer (UICC) staging system.[3] Survival and mortality data were verified with the Social Security Death Index.

TABLE 1. Classification of adenocarcinoma of the esophagogastric junction*

Classification type	Description
I	Adenocarcinoma of the distal esophagus that infiltrates the esophagogastric junction from above
II	Adenocarcinoma of the cardia, "junctional carcinoma"
III	Adenocarcinoma of the stomach that infiltrates the esophagogastric junction and distal esophagus from below

*Siewert and Stein.[2]

Descriptive statistics are reported by using numbers (percentages) for discrete data and medians (ranges) for continuous data. Survival subsequent to discharge was estimated among the remaining patients who survived hospitalization by using the Kaplan-Meier survival method.[4] The association between patient survival and risk factors was examined by using the log-rank test.[4,5] The study was reviewed and approved by the Mayo Clinic Institutional Review Board.

Results

One hundred sixteen patients were identified: 93 (80.2%) men and 23 (19.8%) women. Median age at the time of the operation was 66 years (range, 22-87 years). Signs and symptoms were present at the time of diagnosis in 113 (97.4%) patients. The most common symptoms were dysphagia (60.3%), weight loss (31.0%), pain (15.5%), bleeding (14.7%), and early satiety (12.1%). Thirteen (11.2%) patients had undergone prior gastric surgery for other pathology, most commonly peptic ulcer disease.

The operative approach was laparotomy alone in 63 (54.3%) patients, a left thoracoabdominal approach in 46 (39.7%) patients, and laparotomy with a right thoracotomy in 7 (6.0%) patients. Total or completion gastrectomy and distal esophagectomy with Roux-en-Y esophagojejunostomy was performed in all 116 patients. Sixty-nine (59.5%) patients had complete resections (R0), and 47 (40.5%) had incomplete resections (R1), as evidenced by microscopically positive resection margins. Of the 47 patients with positive margins, 5 (10.6%) had positive margins at the proximal esophageal margin alone. Forty-one (87.2%) had positive margins on the stomach or other organ resected en bloc. One (2.1%) patient had both a positive proximal esophageal margin and distal margin. Positive margins were encountered in 28 (44.4%) of the laparotomy-alone approaches, 16 (34.8%) of the left thoracoabdominal approaches, and 7 (100%) of the laparotomy and right thoracotomy approaches.

The median number of lymph nodes resected in the specimen was 13 (range, 2-46). In patients classified as having N0 disease, 20 (66.7%) had at least 15 lymph nodes